

REMARKS

Status of the claims

Claims 1-3, 5-6, 8-9, 12, 15-18, 20-21, 23-24, 27, 30-31, 34-37, 39-41 and 43-53 are pending in the application. Claims 1-3, 5-6, 8-9, 12, 15, 37, 39-41 and 43-52 are withdrawn. Claims 4, 7, 10-11, 13-14, 19, 22, 25-26, 28-29, 32-33, 38 and 42 were previously cancelled. Claim 53 is newly added. Support for claim 53 may be found at least in original claim 16 and page 7, lines 3-4 of the specification. No new matter has been added with new claim 16. As such, entry and consideration thereof are respectfully requested.

Objection to the Abstract

The Abstract of the Disclosure has been objected to for containing less than 50 words. The Abstract has been amended herein so as to be in conformity with MPEP §608.01(b) and contain 50-150 words. Withdrawal of the objection is therefore respectfully requested.

Rejections under 35 U.S.C. §103

Claims 16-18, 20, 27, 30 and 34-36 have been rejected under 35 U.S.C. §103 as being obvious over Ritchie et al. US '967. The Examiner asserts that Ritchie et al. US '967 discloses a process for preparing solid polyester granules, which is the product of a reaction of unsaturated polyester with styrene, wherein the initiating system has an amine of N,N-bis(2-hydroxymethyl)-p-toluidine and benzoyl peroxide. The Examiner notes that Ritchie et al. US '967 is silent regarding the use of more than one peroxide in the preparation of the solid polyester granules but asserts that the recited ratio of claim 16 of a ratio equal to or greater than 1:1 encompasses ratios wherein the second peroxide is only present in very low amounts, which would have no effect on the process. Applicants traverse this rejection and withdrawal thereof is respectfully requested.

The Examiner acknowledges that Ritchie et al. US '967 is silent on the use of more than one peroxide in the process of preparing solid polyester granules. Claim 16 recites, as a step of the claimed process, "preparing a solution of unsaturated polyester and a combination of diacyl peroxides in styrene, wherein the combination of diacyl peroxides comprises diaroyl peroxide and dialkanoyl peroxide having a diaroyl peroxide to dialkanoyl peroxide mole ratio that is equal to or greater than 1:1". An important feature of the present invention is that the polyester granules are prepared using a combination of diaroyl peroxide and dialkanoyl peroxide having a

mole ratio that is equal to or greater than 1:1. In support of the rejection, the Examiner asserts that the specified ratio in the claims of the application can be satisfied by a ratio of 1000000:1 or even higher. Upon employing such a ratio the Examiner asserts it "would be expected that presence of a very low amount of second peroxide according to this ratio will not bring any changes to the process disclosed by Ritchie". The Examiner then concludes that for this reason it would be obvious to one of ordinary skill to "use a very low amount of the second peroxide due to predictability of outcome of the process disclosed by Ritchie".

The Examiner's attention is directed to the recent holding of *In re Suitco Surface Inc.*, 94 USPQ2d 1640 (Fed. Cir. 2010). The Court of Appeals for the Federal Circuit stated in *Suitco* that,

this court has instructed that any such construction be "*consistent with the specification*, ... and that claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Bond*, 910 F.2d 831, 833 [15 USPQ2d 1566] (Fed. Cir. 1990) (quoting *In re Sneed*, 710 F.2d 1544, 1548 (Fed. Cir. 1983)) (emphasis added).

The PTO's construction here, though certainly broad, is unreasonably broad. The broadest-construction rubric coupled with the term "comprising" does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. Rather, claims should always be read in light of the specification and teachings in the underlying patent.

As with *Suitco*, the Examiner in consideration of the present claims is unreasonably broad and completely contrary to the clear teachings of the specification. Through an unreasonable, artificial and exaggerated construction of the claim the Examiner attempts to in effect ignore a key feature associated with the invention (i.e. the use of a combination of peroxides in a particular mole ratio). The Examiner effectively eviscerates the recited feature of having two peroxides with the interpretation set forth in the Office Action. This position is completely contrary to the instruction in *Suitco*. In the context of the present application as a whole it would be counter intuitive to construe the claims of the present application in a way that a combination of peroxides is used in an exaggerated mole ratio where one of the peroxides is present at such a low concentration it imparts no material effect and is therefore redundant.

As noted by the Examiner, Ritchie et al. US '967 is silent on the use of more than one peroxide in the process of preparing solid polyester granules. Nor is there any suggestion of

such a modification in the reference teachings. As such, the present invention is not obvious over Ritchie et al. US '967 and withdrawal of the rejection is respectfully requested.

Claims 16-18, 20-21, 23-24, 27, 30-31, 34-36 have been rejected under 35 U.S.C. §103 as being obvious over Ritchie et al. US '967 in view of Papastavros et al. US '996. Further to the alleged disclosure of Ritchie et al. US '967 as discussed above, Papastavros et al. US '996 is asserted to teach a polymerization process of liquid vinyl monomers and unsaturated polyesters in the presence of initiators and catalysts. The system of Papastavros et al. US '996 is asserted to use two peroxides with different half life temperatures and to be used at respectively lower and higher temperature initiators. The Examiner asserts that it would have been obvious to one skilled in the art to use the second peroxide of Papastavros et al. US '996 in a molar ratio of 1:1 in the process of Ritchie US '967 to conduct a process efficiently and without excessive exotherm. Applicants traverse this rejection and withdrawal thereof is respectfully requested.

As acknowledged by the Examiner and as discussed above, Ritchie US '967 is silent regarding the broad concept of using a combination of peroxides, let alone using a combination of dialkanoyl and diaroyl peroxides in a mole ratio that is equal to or greater than 1:1. In support of this rejection, the Examiner contends that such deficiency in the disclosure of Ritchie US '967 is adequately provided for in the disclosure of Papastavros US '996.

However, the disclosures of Ritchie US '967 and Papastavros US '966 referred to by the Examiner cannot be arbitrarily combined so as to achieve the rejection. There needs to be something more in the combined disclosure than merely the presence of all relevant features defined in the claims of the present application. As reaffirmed in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007),

Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness....a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.

In raising the objection the Examiner notes that Papastavros US '996 is a "reference cited by the applicant". However, it should be noted that this reference was in no way considered material

to the patentability of the invention by the Applicant, rather it was listed in an IDS as a result of the document being cited in the International Search Report that issued on the corresponding PCT application. In that regard, it should be further noted that the International Search Report listed Papastavros as an "A" citation, thereby noting that the document defines the general state of the art which is not considered to be of particular relevance to the present invention.

The instant claims define a process for preparing solid polyester granules. The process involves polymerizing styrene and unsaturated polyester monomers using a suspension/emulsion polymerization technique. Polymerization of the monomers is promoted using a redox initiating system comprising an aromatic amine of Formula (I) and a combination of diaroyl and dialkanoyl peroxides in a mole ratio that is equal to or greater than 1:1. Those skilled in the art will appreciate that the polymerization technique (i.e. suspension/emulsion polymerization) according to the invention requires the use of specific apparatus and reagents. As discussed at least on page 3 of the specification as originally filed, a problem with which the present invention is concerned relates to undesirable high levels of residual styrene monomer present in polyester granules prepared by prior art techniques. Although related to the manufacture of polyester granules, Ritchie US '967 fails to identify any problem associated with high styrene monomer residues present in polyester granules, let alone propose an approach for addressing such a problem.

Papastavros US '996 discloses an apparatus and process for manufacturing supported solid polymeric sheets. The problem addressed in Papastavros US '996 relates in general to the mechanization/automation of preparing such supported solid polymeric sheets. Papastavros US '996 addresses this problem by teaching an apparatus for producing a more or less continuous sandwich of a substrate interposed between two sheet materials, the sandwich type structure being adhered through use of a polymerizable liquid introduced between the layers of the structure. Papastavros US '996 is not related in any way to the preparation of polyester granules, let alone addressing the problem of high styrene monomer residue present in such granules. One of ordinary skill in the art would not be motivated in any way to combine the disclosure of Papastavros US '996 with the disclosure of Ritchie US '967.

In support of the rejection the Examiner states that Papastavros US '996 "teaches polymerisation process of liquid vinyl monomers and unsaturated polyesters in the presence of initiators and catalyst systems comprising two peroxides". However, it is important to note

that Papastavros US '996 in fact only makes reference to polymerizing liquid vinyl monomers and "unsaturated polymers" and not "unsaturated polyesters", as suggested by the Examiner. Moreover, Papastavros US '996 makes no reference or suggestion whatsoever of using as the polymerizable liquid monomers, styrene and unsaturated polyester. Furthermore, the polymerization process disclosed and exemplified in Papastavros US '996 is a bulk polymerization and not a suspension/emulsion polymerization. Those skilled in the art would appreciate that bulk and suspension/emulsion polymerizations are two entirely different polymerization techniques requiring different apparatus and reagents. Suspension/emulsion polymerization processes are heterogeneous, whereby the polymer is formed as a separate particulate phase in either water or organic solvent. In the context of the present invention, the monomer and initiating species used will partition differently into the different phases depending on their solubility. Some of these species will exist in the polymer phase and some will be dissolved in the continuous phase. A further requirement in suspension/emulsion polymerizations is the necessity to maintain colloidal stability of the resulting polymer.

In contrast, bulk polymerization is usually a homogeneous system whereby all reagents used to form the polymer (and the resulting polymer itself) are dissolved in a solvent. Bulk and emulsion/suspension polymerizations are considered in the art to be considerably different not only in terms of the reagents required to perform the polymerization, but also in terms of how the polymerization proceeds. It is submitted that a person of ordinary skill in the art would not consider the disclosure in Papastavros US '996 relating to bulk polymerization of vinyl monomers and unsaturated polymers for producing solid polymeric sheets relevant to the suspension/emulsion polymerization systems utilized in accordance with the present invention.

Papastavros US '996 does make reference to using a combination of initiators in order to avoid generating a large exotherm during the bulk polymerization process. However, it is important to note that Papastavros US '996 contemplates a variety of initiator combinations, the majority of which are not a combination of peroxides, let alone a combination of diaroyl and dialkanoyl peroxides (see, for example, column 9, which contemplates using a vast array of non-peroxide initiators). Furthermore, Papastavros US '996 teaches that the combination of peroxides is to be used in order to avoid generation a large exotherm during polymerization. Such teaching provides no motivation or suggestion whatsoever that a combination of peroxides, let alone a combination of diaroyl and dialkanoyl peroxides, might be useful in producing

polyester granules having a reduced level of styrene monomer residue.

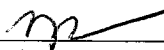
Accordingly, upon being faced with the problem presented in the present application, one of ordinary skill in the art would simply not have turned to the disclosure of Papastavros US '996. Furthermore, even if the disclosure of Papastavros US '996 had been reviewed by a person skilled in the art in combination with Ritchie US '967, it is submitted that there is no basis provided in Papastavros US '996 for that person skilled in the art to consider the polymerization techniques disclosed therein relevant to the polymerization techniques employed in the present invention, let alone select such a specific combination of peroxide initiators in the hope that they might facilitate preparing by suspension/emulsion polymerization polyester granules having a reduced styrene monomer residue content. The claims of the present application are therefore not believed to be obvious over Ritchie US '967 in view of Papastavros US '996. Withdrawal of the rejection is therefore respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact MaryAnne Armstrong, PhD, Registration No. 40069, at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: May 17, 2011

Respectfully submitted,

By 
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